



ENERGY STAR for Homes, Version 3

Insulation Requirements for Attic Entrances

Guidance on Items 5.3.1 and 5.3.2 of the Thermal Enclosure System Rater Checklist (Rev. 04)

Improper air sealing and insulating of attic entrances decreases the efficiency of the home and can decrease occupant comfort. For this reason, Items 5.3.1 and 5.3.2 of the Thermal Enclosure System Rater Checklist define attic entrance sealing and insulating requirements for qualified homes as follows:

- **Item 5.3.1** - Doors adjacent to unconditioned space (e.g., attics, garages, basements) or ambient conditions gasketed or made substantially air-tight
- **Item 5.3.2** - Attic access panels and drop-down stairs equipped with a durable $\geq R-10$ insulated cover that is gasketed (i.e., not caulked) to produce continuous air seal when occupant is not accessing that attic¹

This document provides further guidance on these two items to ensure that their intent is more consistently met, given the variety of attic hatches, access panels, drop down stairs, and insulated covers available.

First, Policy Record ID 00095 clarifies that Item 5.3.2 applies only to attic access panels and drop-down stairs located in ceilings, where ceilings are defined as all non-vertical surfaces, regardless of slope (e.g., cathedral ceilings, tray ceilings, conditioned attic roof decks, flat ceilings, sloped ceilings). Attic access panels on vertical surfaces (i.e., walls) are not required to meet these requirements, but are required to meet the requirements for doors contained in Item 5.3.1.

Second, this same Policy Record ID describes two options for demonstrating compliance with the intent of Item 5.3.2. For both options, the insulation requirements apply to the surface area bounded by the gasketing material. See Exhibits 1 through 4 for an illustration of four configurations, where the surface shaded orange represents the applicable insulated surface area.

Partners can meet the requirement in Item 5.3.2 for a cover insulated to at least R-10 in one of two ways.

Compliance Option 1: Continuous $\geq R-10$ Insulation

One option to demonstrate compliance is to insulate 100% of the applicable surface area bounded by the gasketing material with $\geq R-10$ insulation.

Compliance Option 2: Alternative Equivalent U-Factor

A second option to demonstrate compliance is to achieve an alternative equivalent U-factor of the surface area bounded by the gasketing material that is less than or equal to 0.10, which shall be calculated using the following parameters:

1. The parallel path methodology outlined in Chapter 25 - *Heat, Air, and Moisture Control in Building Assemblies - Fundamentals* 2009 ASHRAE Handbook of Fundamentals shall be used;
2. Material U-factors shall be taken from Chapter 26 - *Heat, Air, and Moisture Control in Building Assemblies - Material Properties* of the 2009 ASHRAE Handbook of Fundamentals;
3. The calculation shall be performed moving from the interior surface to the exterior surface (heat transfer under winter conditions) to ensure consistent results;
4. A minimum of 75% of the applicable surface area shall be insulated to at least R-10.

Exhibit 1: Insulated Attic Access Panel



Exhibit 2: Drop-down Stairs with Insulated Box Lid



Exhibit 3: Drop-down Stairs with Insulated Panel

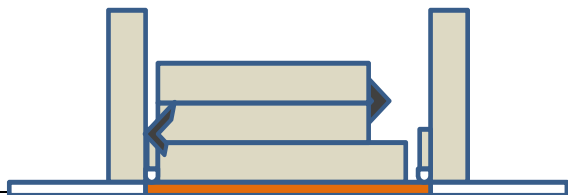
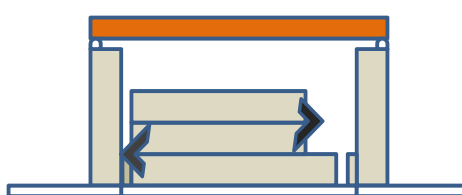


Exhibit 4: Drop-down Stairs with Insulated Lid



¹ Examples of durable covers include, but are not limited to, pre-fabricated covers with integral insulation, rigid foam adhered to cover with adhesive, or batt insulation mechanically fastened to the cover (e.g., using bolts, metal wire, or metal strapping).